

REMARKS/ARGUMENTS

In view of the following remarks, reexamination and reconsideration of this application, withdrawal of the rejections, and formal notification of the allowability of all claims as presented are earnestly solicited. As detailed in the Office Action mailed February 2, 2007, Claims 11-20 are pending, wherein Claims 11-20 have been rejected. In response to the Office Action, Claim 11 has been amended to further clarify the subject matter being claimed. The amendments to Claim 11 find support throughout the Specification and the Figures, and no new matter has been added. It is believed that the claims now define patentable subject matter over the prior art cited in the Office Action and notice to such effect is requested at the Examiner's earliest convenience.

Specification

The Specification was objected to in the Office Action for lacking antecedent basis for the term "non-concave bevel." The Office Action also objected to the term "non-concave bevel" as being new matter with respect to the disclosure. In response, the Applicants traverse, and submit that a non-concave bevel finds support throughout the Specification and the Drawings.

More particularly, a bevel is disclosed and claimed in the as-filed application, and such a bevel is shown, for example, in FIGS. 4a-4c, 5, and 8c of the application. The bevel in the indicated figures is "linear" or flat and, as such, is **not concave**. Further, paragraph [0025] of the Specification particularly recites that "[t]he bevel can be **even or convex** or concave in the transverse direction of the bar." In this regard, the term "non-concave bevel" at least excludes a concave bevel from the various configurations of the bevel recited in the Specification and shown in the Drawings. As such, **the term "non-concave bevel" is a narrower recitation of the term "bevel" that at least excludes a concave configuration**, wherein the "non-concave bevel" may be, for example, flat/even/linear or convex, as particularly recited in the Specification and shown in the Drawings. The Applicants thus submit that the term "non-concave bevel" **is fully supported** and **finds an antecedent basis** in the as-filed application, and **does not comprise new matter** as alleged in the Office Action. The Applicants therefore request withdrawal of these objections.

Claim Rejections – 35 U.S.C. §112

Claims 11, 12, and 16-20 were rejected in the Office Action as failing to comply with the written description requirement in regard to the term “non-concave bevel.” In response, the Applicants note that this issue is addressed above with respect to the objections to the Specification. More particularly, paragraph [0025] of the Specification particularly recites that “[t]he bevel can be **even or convex** or concave in the transverse direction of the bar.” As such, the Specification particularly recites that the bevel can be even or convex, and thus non-concave. In this regard, the Applicants further note that MPEP §2173.05(i) particularly recites that “[a]ny negative limitation or exclusionary proviso must have basis in the original disclosure. ***If alternative elements are positively recited in the specification, they may be explicitly excluded in the claims.***” See *In re Johnson*, 558 F.2d 1008, 1019, 194 USPQ 187, 196 (CCPA 1977) (“[the] specification, having described the whole, necessarily described the part remaining.”). See also *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), *aff’d mem.*, 738 F.2d 453 (Fed. Cir. 1984). The Applicants’ use of the term “non-concave bevel” at least excludes a concave bevel from the various configurations of the bevel recited in the Specification and shown in the Drawings, and is consistent with MPEP §2173.05(i). The Applicants therefore traverse, and request withdrawal of these rejections.

Claim Rejections – 35 U.S.C. §102

Claim 11 was rejected in the Office Action as being anticipated by U.S. Patent No. 4,678,127 to Cumpston, by U.S. Patent Application Publication No. US 2003/0183712 A1 to Virving, and by U.S. Patent Application Publication No. US 2002/0070303 A1 to Johansson et al. In response, Claim 11 has been amended to further clarify the subject matter being claimed.

More particularly, Claim 11, as amended, recites a refining surface of a refiner, wherein the refiner includes two opposed refining surfaces coaxially-disposed along an axis, with at least one of the refining surfaces being configured to rotate about the axis in a rotation direction, further wherein the refining surfaces are configured to receive a lignocellulose material therebetween for defibering thereof. Such a refining surface comprises a plurality of radially-

extending bars defining grooves between adjacent bars, with each groove having a bottom surface. Each bar has a leading surface and an opposed trailing surface, with each of the leading and trailing surfaces being configured to extend away from the bottom surface of the respective grooves. Each bar also has a radially-extending length and an angularly-extending width. At least one of the bars includes a non-concave bevel extending from a leading edge of the leading surface of the bar, wherein the leading edge of the leading surface is defined with respect to the interaction of the non-concave bevel with the opposed refining surface. The non-concave bevel is spaced apart from the bottom surface of the groove along the leading surface and extends across the bar, from the leading surface for less than the entire width thereof. The remainder of the width of the bar, extending from the non-concave bevel to the trailing surface, is substantially parallel to the refining surface. The leading edge of the non-concave bevel is further configured such that, as an opposed bar of the opposed refining surface approaches axial coincidence with the non-concave bevel, an increasing force is generated substantially perpendicularly to the refining surface and axially outward with respect to the opposed refining surfaces.

As disclosed in the Specification, for example, paragraphs [0014] and [0024], the bevel about the leading edge of the bar helps to create a force between the refining surfaces that urges the refining surfaces apart. Because of the axially outward force, the refining surfaces will not contact each other, and thus will reduce the wear experienced by the refining surfaces during the defibering process. In this regard, the Drawings, for example, Figures 4a-4c, 5, 6a-6c, 7a-7c, and 8a-8c, illustrate embodiments of the present invention whereby the bevels are not concave. Further, such figures also illustrate that each groove on either side of a bar includes a bottom surface, wherein each bar has a leading surface and an opposed trailing surface, each extending away from the bottom surface of the adjacent grooves. Each bar also has a radially-extending length and an angularly-extending width. At least one of the bars includes a non-concave bevel extending from a leading edge of the leading surface of the bar, wherein the leading edge of the leading surface is defined with respect to the interaction of the non-concave bevel with the opposed refining surface. The non-concave bevel is spaced apart from the bottom surface of the groove along the leading surface and extends across the bar, from the leading surface for less than the entire width thereof. The remainder of the width of the bar,

extending from the non-concave bevel to the trailing surface, is substantially parallel to the refining surface. Since such amendments find support within the Specification and the Drawings, no new matter has been added.

FIG. 3 of the Johansson '303 reference, as cited in the Office Action and as shown below, illustrates an adjustable portion of the refining surface of a refiner plate, wherein such a refiner plate is shown in FIG. 2. The Johansson '303 reference shows that the adjustable portion can be angled with respect to the remainder of the refiner plate (see, e.g., FIG. 11). However, should the insert bars 86 be aligned with the remainder of the refiner plate, the insert bars would extend in the ***radial direction*** (indicated as arrow "R" in FIG. 3) with respect to the refiner plate. In such an instance, the sloped portions of the insert bars (indicated as item "A" in FIG. 3), alleged in the Office Action to be "bevels", would extend in ***the radial direction***. Further, the "bevels" would **not** extend in ***the angular direction***, in the direction of the width of the bar (indicated as arrow "θ" in FIG. 3) and for less than the entire width of the bar, as particularly claimed in Claim 11.

Even if the adjustable portion of the refiner plate were to be adjusted to be perpendicular to the remainder of the refiner plate, such that the insert bars extended in the angular direction (indicated as arrow "θ" in FIG. 2), the insert bars would be adjacent to each other in ***the radial direction*** (indicated as arrow "R" in FIG. 2) and thus would **not** be ***angularly spaced so as to define grooves between adjacent bars***, as also particularly claimed in Claim 11.

In any instance, the sloped surface (item "A" in FIG. 3) of the insert bar, alleged in the Office Action to be a "bevel", **does not** have a leading edge that is **spaced apart from the base surface** of the adjustable portion of the refiner surface, as now particularly required by amended Claim 11. Thus, the Applicants submit that amended Claim 11 is not anticipated by, and is thus patentable over, the Johansson '303 reference. As such, the Applicants request withdrawal of this rejection.

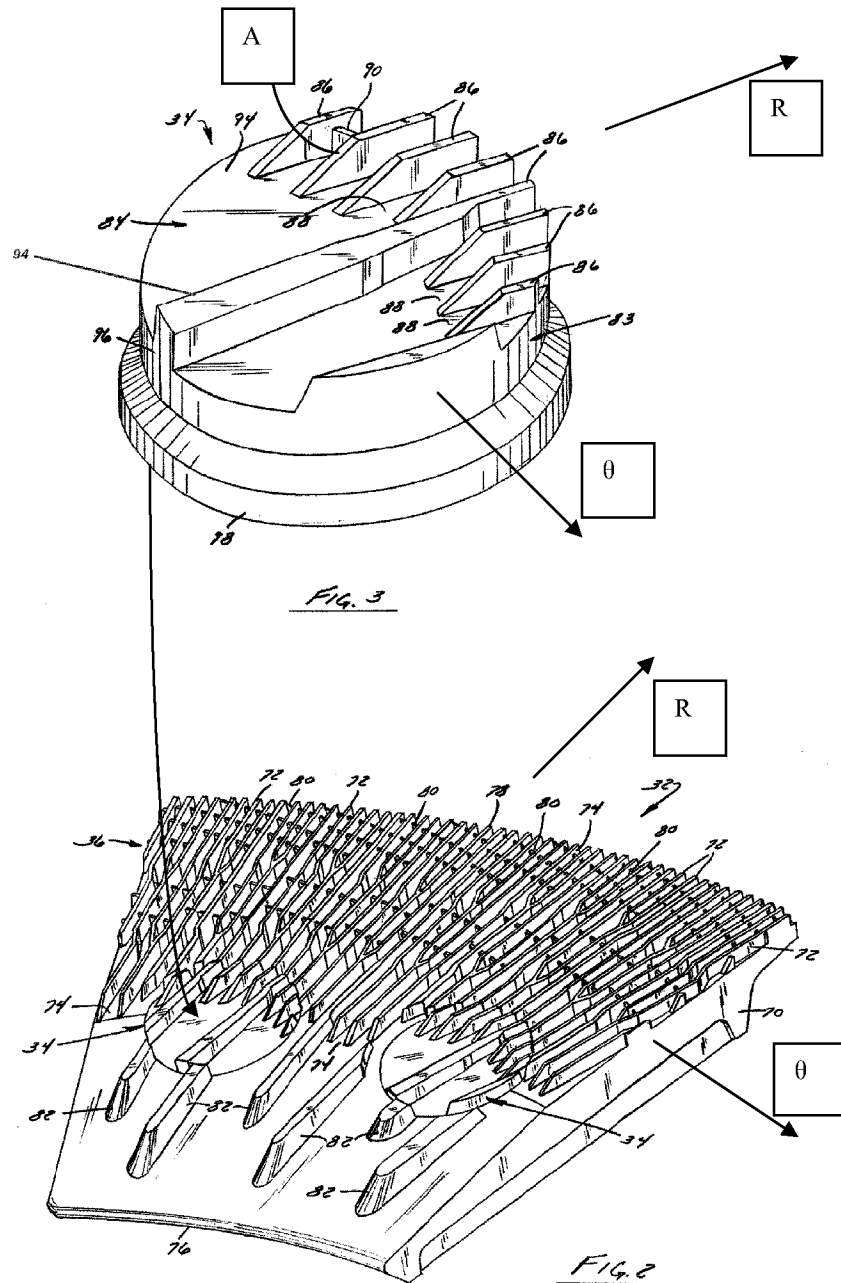


FIG. 3 of the Virving '712 reference, as also cited in the Office Action and as shown below, illustrates a cross-section of a portion of a refining segment of a refining disc, as shown in FIG. 2. In this regard, FIG. 3 particularly illustrates a profile of one of the "blades" of the

refining segment, wherein the blade extends in *the radial direction* (indicated as arrow “R” in FIGS. 2 and 3). Thus, the sloped portion of the profile (indicated as item “A” in FIG. 3), alleged in the Office Action to be a “bevel”, also extends in *the radial direction*. In such a configuration, the “bevels” would **not** extend in *the angular direction*, in the direction of the width of the bar (schematically indicated as arrow “ θ ” in FIG. 2) and for less than the entire width of the bar, as particularly claimed in Claim 11. In any instance, the sloped surface of the profile (indicated as item “A” in FIG. 3), alleged in the Office Action to be a “bevel”, **does not** have a leading edge that is **spaced apart from the base surface** of the refining segment, as now particularly required by amended Claim 11. Thus, the Applicants submit that amended Claim 11 is not anticipated by, and is thus patentable over, the Virving ‘712 reference. As such, the Applicants request withdrawal of this rejection.

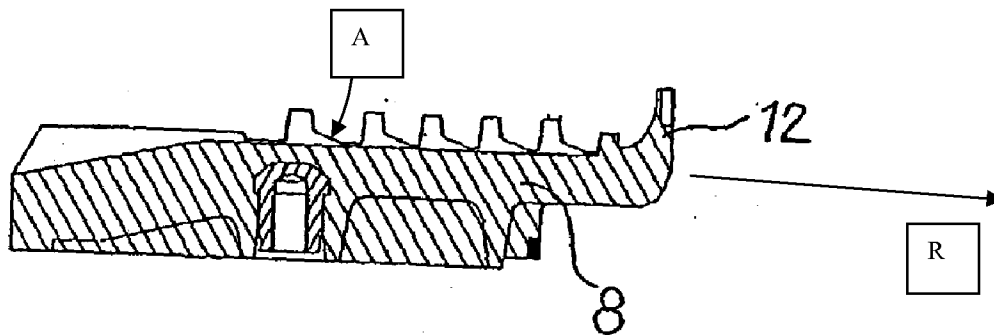
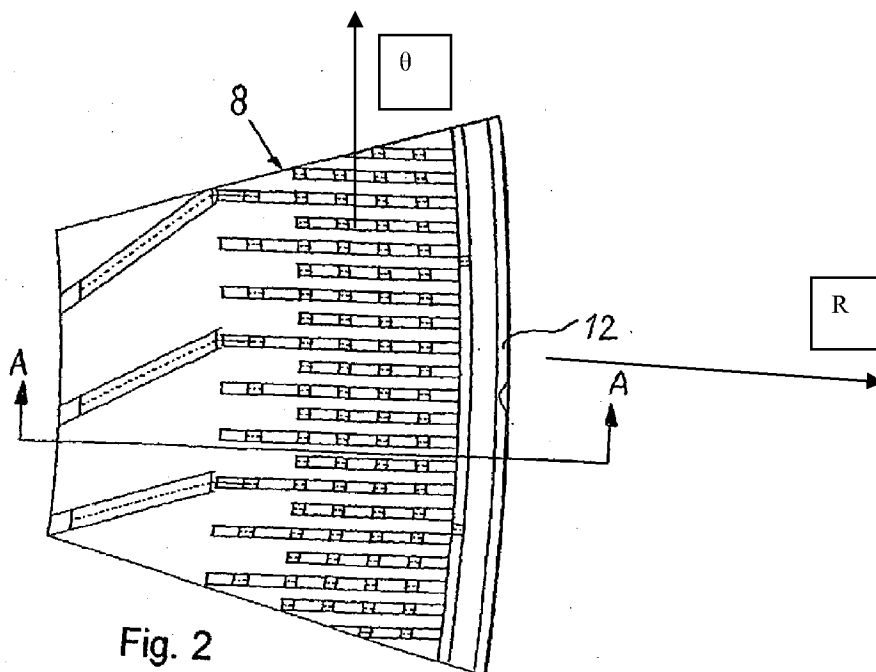
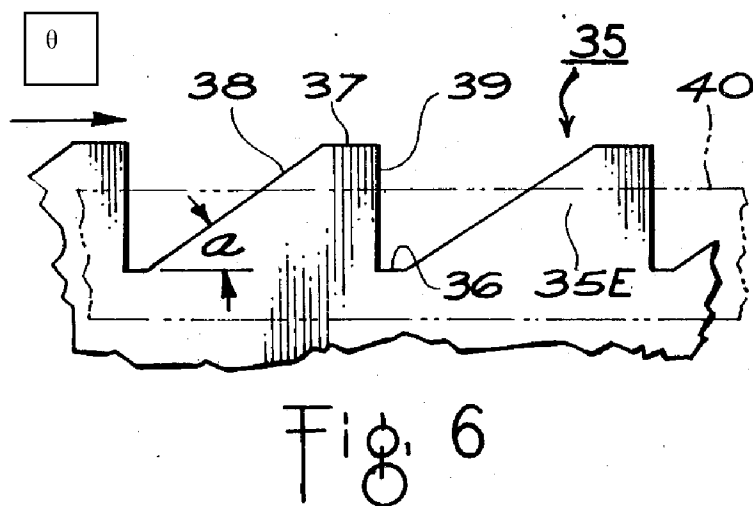


Fig. 3



Finally, FIG. 6 of the Cumpston '127 patent, as also cited in the Office Action and as shown below, illustrates a profile of a segment of a rotor or stator of a disk attrition device. The profile extends in the angular direction (indicated as arrow "θ" in FIG. 6) and demonstrates a cross-section of the width of the working bar. In this regard, the sloped surface 38 of the working bar 35, alleged in the Office Action to be a "bevel", **does not** have a leading edge that is **spaced apart from the base surface** of the groove 36 (i.e., the sloped surface begins at base surface of the groove), as now particularly required by amended Claim 11. Thus, the Applicants submit that amended Claim 11 is not anticipated by, and is thus patentable over, the Cumpston '127 patent. As such, the Applicants request withdrawal of this rejection.



As stated by MPEP §2131, “to anticipate a claim, the reference must teach every element of the claim.” That is, “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”

Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

In this regard, the Cumpston ‘127, Johansson ‘303, and Virving ‘712 references, either separately or in combination, **do not** teach or suggest a refining surface comprising a plurality of radially-extending bars defining grooves between adjacent bars, with **each groove having a bottom surface**, wherein each bar has **a leading surface and an opposed trailing surface, with each of the leading and trailing surfaces being configured to extend away from the bottom surface of the respective grooves**, as well as a radially-extending length and an angularly-extending width, wherein at least one of the bars includes **a non-concave bevel extending from a leading edge of the leading surface of the bar**, with the leading edge of the leading surface being defined with respect to the interaction of the non-concave bevel with the opposed refining

surface, and wherein the non-concave bevel is *spaced apart from the bottom surface of the groove along the leading surface* and extends across the bar, from the leading surface for less than the entire width thereof, with the remainder of the width of the bar, *extending from the non-concave bevel to the trailing surface*, being substantially parallel to the refining surface, whereby the leading edge of the non-concave bevel is further configured such that, as an opposed bar of the opposed refining surface approaches axial coincidence with the non-concave bevel, an increasing force is generated substantially perpendicularly to the refining surface and axially outward with respect to the opposed refining surfaces, as now particularly claimed in amended Claim 11.

Thus, in light of these distinctions between each of the Cumpston '127, Johansson '303, and Virving '712 references, and amended Claim 11, the Applicants submit that amended Claim 11 is **not anticipated** by, and is therefore **patentable over**, any of the Cumpston '127, Johansson '303, and Virving '712 references. Accordingly, the Applicants respectfully request withdrawal of these rejections.

Claim Rejections – 35 U.S.C. §103

Claims 12-20 were also rejected in the Office Action as being obvious over any of the Cumpston '127, Johansson '303, and Virving '712 references. As previously discussed, Claim 11, upon which Claims 12-20 depend, is **not anticipated** by any of the Cumpston '127, Johansson '303, and Virving '712 references. Further, contrary to the allegation in the Office Action, embodiments of the present invention disclosed, for example, in paragraphs [0014] and [0024] of the Specification, recite that the bevel about the leading edge of the bar helps to create a force between the refining surfaces that urges the refining surfaces apart. Such an effect is also particularly recited in Claim 11. Because of the axially outward force, the refining surfaces will not contact each other, and thus will reduce the wear experienced by the refining surfaces during the defibering process. The Applicants submit that such configurations and the advantages associated therewith, and claimed in Claim 11, are **not taught or suggested** by any of the Cumpston '127, Johansson '303, and Virving '712 references. As such, the Applicants submit that Claims 12-20, which depend either directly or indirectly from Claim 11, are patentable over

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the Cumpston '127, Johansson '303, and Virving '712 references cited in the Office Action. As such, the Applicants respectfully request withdrawal of these rejections.

Conclusion

In summary, the Cumpston '127, Johansson '303, and Virving '712 references, either separately or in combination, **do not** teach or suggest the embodiments of the present invention, as now claimed in Claim 11. Accordingly, in view of these differences between the Applicants' invention and the Cumpston '127, Johansson '303, and Virving '712 references, it is submitted that the present invention, as defined by the pending claims, is patentable over the prior art cited in the Office Action. As such, Claims 11-20 are believed to be in condition for immediate allowance.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

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